

AMENDMENTS TO THE CLAIMS:

1. (Currently amended) A radiator for a vehicle, comprising:
an inlet header;
an outlet header;
a soldered core with a core length "h" and a core depth "t", said core
having
a plurality of coolant flat tubes joining said inlet header and said
outlet header, wherein said flat tubes extend generally ver-
tically with said inlet header soldered to the upper ends of
said flat tubes, and
cooling fins on opposite sides of said coolant flat tubes; ~~and~~
a multifunction flat tube on one side of said core and having a greater
section modulus (W_x , W_y) than said coolant flat tubes, said
multifunction flat tube being soldered to adjacent cooling fins and
said inlet and outlet headers whereby said multifunction flat tube
carries coolant from said inlet header to said outlet header;
a first partition in said inlet header defining separated first and second
inlet chambers, said first inlet chamber being above said
multifunction flat tube and said second inlet chamber being above
said coolant flat tubes whereby coolant in said multifunction flat

tube is received from said first inlet chamber and coolant in said
flat tubes is received from said second inlet chamber; and
a filling line between a coolant fill supply and said first inlet chamber for
adding coolant to said radiator.

2. (Currently amended) The radiator of claim 1, further comprising:

a second multifunction flat tube on the opposite side of said core and
soldered to adjacent cooling fins and said inlet and outlet headers
whereby said second multifunction flat tube carries coolant from
said inlet header to said outlet header, said second multifunction
flat tube having a greater section modulus (W_x , W_y) than said
coolant flat tubes;

a second partition in said inlet header defining a third inlet chamber separated from said second inlet chamber, said third inlet chamber
being above said second multifunction flat tube whereby coolant
in said second multifunction flat tube is received from said third
inlet chamber; and

said filling line also extends between the coolant fill supply and said third
inlet chamber for adding coolant to said radiator.

3. (Original) The radiator of claim 1, wherein said radiator is a downdraft radiator with said inlet header on top and said outlet header on the bottom, and said inlet and outlet headers include

a plurality of openings each of which receives an end of one of said coolant flat tubes, and

an end opening receiving an end of said multifunction flat tube, said end opening being larger than each of said plurality of openings.

4. (Original) The radiator of claim 1, wherein said multifunction flat tube has substantially the same length "h" and depth "t" as said core.

5. (Original) The radiator of claim 1, wherein said multifunction flat tube is formed by one of soldering and welding.

6. (Withdrawn) The radiator of claim 1, wherein said multifunction flat tube includes walls extending the depth of said core, said tube walls being deformed along their length between said inlet and outlet headers to define separate coolant passages.

7. (Original) The radiator of claim 1, wherein said multifunction flat tube includes flat walls extending the depth of said core, and further

comprising an insert between said flat walls of said multifunction flat tube, said insert defining coolant passages through said multifunction flat tube between said inlet and outlet headers.

8. (Withdrawn) The radiator of claim 1, wherein said multifunction flat tube includes flat walls extending the depth of said core with inward directed protrusions, said protrusions being connected to each other.

9. (Original) The radiator of claim 1, wherein the inner flow resistance of the multifunction flat tube is substantially smaller than the inner flow resistance of said coolant flat tubes.

10. (Original) The radiator of claim 1, wherein said multifunction flat tube has a wall thickness substantially greater than the wall thickness of said coolant flat tubes and a tube height substantially greater than the height of said coolant flat tubes.

11. (Original) The radiator of claim 10, wherein said multifunction flat tube wall thickness is at least two times the wall thickness of said coolant flat tubes.

12. (Original) The radiator of claim 11, wherein said multifunction flat tube wall thickness is at least about 1.0 mm.

13. (Original) The radiator of claim 10, wherein the height of said multifunction flat tube is at least two times the height of said coolant flat tubes.

14. (Original) The radiator of claim 13, wherein the height of said multifunction flat tube is at least about 10 mm.

15. (Canceled)

16. (Currently amended) The radiator of claim ~~15~~ 1, wherein said filling line slopes down from the coolant fill supply to the first inlet chamber.

17. (Currently amended) A radiator for a vehicle, comprising:
an inlet header;
an outlet header;
a soldered core having

a plurality of coolant flat tubes extending generally vertically and
joining said inlet header and said outlet header with upper
ends of said coolant tubes soldered to said inlet header, and
cooling fins on opposite sides of said coolant flat tubes; ~~and~~
a multifunction flat tube
which is soldered to adjacent cooling fins on one side of said core
and to said inlet and outlet headers whereby said multi-
function flat tube carries coolant from said inlet header to
said outlet header, and
having an inner flow resistance which is substantially smaller than
the inner flow resistance of said coolant flat tubes whereby
more coolant flows through said multifunction flat tube
than flows through an individual coolant flat tube per unit
time to influence temperature distribution over the entire
radiator;
a partition in said inlet header defining separate first and second inlet
chambers above said multifunction flat tube and said coolant flat
tubes, respectively; and
a filling line between a coolant fill supply and said first coolant chamber
for adding coolant to said radiator.

18. (Currently amended) The radiator of claim 17, further comprising

a second multifunction flat tube on the opposite side of said core and soldered to adjacent cooling fins and said inlet and outlet headers whereby said second multifunction flat tube carries coolant from said inlet header to said outlet header, said second multifunction flat tube having an inner flow resistance which is substantially smaller than the inner flow resistance of said coolant flat tubes whereby more coolant flows through said second multifunction flat tube than flows through an individual coolant flat tube per unit time to influence temperature distribution over the entire radiator;

a second partition in said inlet header defining a third inlet chamber separated from said second inlet chamber, said third inlet chamber being above said second multifunction flat tube whereby coolant in said second multifunction flat tube is received from said third inlet chamber; and

said filling line also extends between the coolant fill supply and said third inlet chamber for adding coolant to said radiator.

19. (Original) The radiator of claim 17, wherein said radiator is a downdraft radiator with said inlet header on top and said outlet header on the bottom, and said inlet and outlet headers include

a plurality of openings each of which receives an end of one of said

coolant flat tubes, and

an end opening receiving an end of said multifunction flat tube, said end

opening being larger than each of said plurality of openings.